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We could spend page upon page quoting from Carol's review or listing the features of SAMPaint.

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Vol.8 N°3.

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FORMAT

THE HOME OF Z80 COMPUTING



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NEWS ON 4

LEMMINGS REVISITED

Fred Publishing released 'Lemmings - The Later Levels' at the Gloucester show on October 22nd. Following on from their highly acclaimed conversion of the original Lemmings, this new game presents even more fiendishly difficult levels that will keep you hunched over your SAM well into the New Year.

For more details contact Fred on 0382 535963.

ROADCRAFT TEST UPDATE

Roadcraft, the police drivers' handbook has recently been completely updated. As a result 'Roadcraft Test', the program produced by Flexibase, has also been updated to match.

The first version, running on SAM, was used on the Institute Of Advanced Motorists stand at the recent NEC Motor Show. Spectrum and IBM PC versions will follow at the end of November.

A few questions have been amended to match the new wording, but many others have been changed completely to reflect the new subjects covered in Roadcraft.

For more details contact Flexibase Software on 0905 775840.

GAMES ENQUIRY ENDS

The Monopolies and Mergers Commission has completed its report on the games industry at a cost of over £1 million of tax payers money and nearly 10 months of work.

The findings of the MMC are now with the Department of Trade and Industry with whom the next steps now depend. The MMC will have reported on whether any type of monopoly exists in the games market and, more crucially, whether the

companies involved (notable Nintendo and Sega) are acting against the public interest in any way.

Experts differ on what the MMC's findings will show. There is little doubt that prices for consol games are artificially high in the UK but that in itself may not bring about legal condemnation. One change that may be made is to curtail the big companies strangle hold on who is allowed to produce games for consols

Z88 AVAILABLE AGAIN

The Z88, the last computer Uncle Clive produced, has been difficult to get hold of for some time. Well, not any more.

Bill Richardson has secured extensive stocks of the Z88 and its peripherals and is now making some good offers.

The Z88 is, for those of you who have not heard of it before, a Z80 based portable computer which runs on batteries or mains and has an LCD display. The machine includes a built-in word processor, spreadsheet, database, calender/diary and runs a sub-set of BBC Basic. Memory is expandable by plug-in modules (either RAM or EPROM) and data is retained provided it is filed on RAM disc before switching off. Data can also be transferred to most other computers via the RS232 link.

At £99 (plus VAT) the Z88 is now nearly half its original price and well worth the money. Other prices are given in W.N.Richardson's advert.

Credits: Bob Bates.

URGENT we need your news. Anything you think other people should know about. Each item printed earns the contributor 3 months extra subscription (please claim when next renewing).

The Editor Speaks

Here we are again, happy as can be, another show behind us and another issue of **FORMAT** to get to the printers.

The show, on the 22nd October, was not as well attended as the first two, mostly because of the appalling weather forecasts the night before, doom and gloom, rain and more rain. In the end the day started very nice, warm and sunny. Although by mid-day the heavens opened so I suppose in the end the forecasters were right. Still, those who braved the early morning sun as set out for Gloucester were rewarded with slightly less of a crush around the stands and more time to talk to exhibitors.

Lots happened at the show, SD Software were demonstrating their new MIDI package for the Spectrum. Steve's Software has a stand plastered with prints from the new SC_Word-Pro, all very nicely produced on one of those super Canon ink-jets. Woodpecker had lots of bargain discs and Fred were busy demonstrating and selling the new Lemmings and a rather nice Football Management Game. Revelation also revealed that a new licensed game for SAM is just round the corner.

There were a couple of new bits of hardware on show for SAM. However, until we know if they are to appear commercially it would not be advisable for me to say too much about them. Following the problems with the SAMCO video digitizer I would rather not lead readers up a path that may not have anything at the end.

The next show will be in April, we will give you the date as soon as we have it.

In view of his health problems, Mark Hall of Blue Alpha could not be at the

show and so we had West Coast Computers stock on the **FORMAT** stand. There were many people who asked us to pass on best wishes to Mark and several who promised to send get-well cards.

Mark is due to go into hospital in early November for the big operation. It looks certain that it will be well into next year before he is well enough to take up the reins of Blue Alpha again. In the meantime WCC have already made alternative arrangements for building SAM peripherals and will have computer production in hand within the next few weeks. WCC are also trying, in conjunction with us here at **FORMAT**, to make arrangements for SAM repairs. If you have any problems with your SAM then give us a ring and we will point you in the right direction for repairs.

The Blue Alpha situation has also caused a major problem for us with the DX1 interface. It now looks unlikely that we will have any for at least another month or so but hopefully we will have better news next month.

Due to the amount of time I've spent on the show and in helping WCC, there has not been time yet to sort out costs and dates on the first books we intend to republish. If everything goes according to plan we should be able to make a firm announcement next month. Sorry to keep you waiting. In the meantime, I would like to hear from you if there is any specific book you would like to get hold of. If the demand is high enough then we will track down the copyright owner and try and get the rights to reprint.

Until next month.

Bob Brenchley, Editor.

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SHORT SPOT

YOUR HINTS, TIPS AND PROGRAMMING IDEAS

Edited By:- John Wase.

This month's Short Spot starts with an apology. Well, a double apology, actually. Roy Burford of Stourbridge keeps on writing, in spite of the fact that I keep on ignoring him. Indeed, he's sending me a goodly supply of stuff that I was short of; that is, stuff for the Spectrum. In the first place, I owe him some discs that I promised I would send, and have not. So my apologies. And in the second place, I had a snippet from him nicely typed and incorporated into last month's Short Spot. The gremlins got in, and it refused to copy itself back to Bob's machine under any circumstances - just gave garbage. This was a program for a 128k Spectrum, and it was on a normal 3.5" PLUS D disc. All I was doing was transferring it onto a SAM disc along with a miscellaneous selection of other programs. Anyone else had a problem like this, or have I merely suffered an electrical Gremlin? Anyway, this time, I've copied it onto its own individual 5.25" disc (Bob loves these [and so do you John. Bob]), and loaded it from this, and run it, so all should be well (famous last words). Anyway, here's hoping. Roy wrote that after his last letter, he tried the Lissajous program in, I think, July's Short Spot, in Beta Basic on his Spectrum, so that the procedures could be used. Roy found firstly that the counter loop, F, was too long, depending on the values of a and b. Although Roy failed to find a method of adjusting it automatically, it suddenly occurred to him that he had been there before (see the REM line 15).

The program below is Lissajous REWRITTEN in SPECTRUM Basic. John Redfern introduced a randomly varying variable E into the program which causes the plot to have more loops by artificially changing the frequency along the y axis. Do, please, note that John has swapped the x and y axes from their normal places. We all tend to read the written word (and I'm as guilty as anyone in publishing half-truths in this column, Roy), but actually, the frequencies need not be integer. Indeed, non-integer values cause more loops. Roy's version of Lissajous takes this into account in manual and automatic setting of the variables. It also uses a large upper value of counter loop; draws the curve and has an exit option when the diagram is complete. The display is squared off in a similar way to an oscillograph to give a better proportioned display. Here's the program...

- 1 REM Vol.8. No1. FORMAT. Sep
tember 1994. Short Spot. p1
1. Lissajous figures. John
Redfern.
- 2 REM Revised to ZX Spectrum+
128K by B.C.R.Burford 1109
94.
- 10 REM Appears to be based hea
vily on Peter Morse etal. T
he Century Programming Cour
se. Century Publishing. 196
3. p509. "Lissajous".
- 20 REM a is signal frequency o
n x axis. b is signal frequ
ency on y axis. c is phase
angle between a and b.
- 30 REM Squared-off display to
look like oscillograph.
- 40 INPUT "Manual or Automatic?"

```

      OR Q";m$
45 IF m$="Q" OR m$="q" THEN ST
OP
50 IF m$="M" OR m$="m" THEN GO
TO 70
60 IF m$="A" OR m$="a" THEN GO
TO 80
65 GOTO 40
70 INPUT "INPUT a(Any1-10 one
dec.pl.) ";a
71 INPUT "INPUT b(Any1-10 one
dec.pl.) ";b
72 INPUT "INPUT c(Any0-3 one d
ec.pl.) ";c
73 GOTO 90
80 LET a=INT (((RND*9.1)+1)*1
0+.5)/10
81 LET b=INT (((RND*9.1)+1)*1
0+.5)/10
82 LET c=INT (((RND*31)/10)*1
0+.5)/10
90 CLS : LET l=2000
95 PRINT #0;"Press a key to ex
it to inputs:"
100 PRINT "x-- ";a;" y-- ";b;"
Ph. ang.= ";c
105 PLOT 127+80*SIN (c),80
110 FOR f=1 TO l
120 DRAW 127+80*SIN (c+a*PI*f/1
00)-PEEK 23677,80+80*SIN (b
*PI*f/100)-PEEK 23678
150 IF INKEY$<>" THEN GOTO 40
160 NEXT f
165 GOTO 40

```

I told you that Roy kept on writing, didn't I. Well, another little tip hit my doormat the other day. Roy re-inked someone else's printer ribbon, using his 'Maxiprint' re-inker. I can't do better than quote the rest of the letter verbatim. "I remarked in my letter of return that I was surprised by the glazed appearance of the ribbon material. I quickly got a report back that the ribbon was no better than before my re-inking, and that the owner of the ribbon was singularly unimpressed by the Maxiprint device. It then came to light that this ribbon had previously been re-inked with endorsing ink.

Therefore my advice is, don't cut corners with ribbon re-inking. Use recommended ink, or risk damage to the ribbon and/or print head."

Finally, Roy also thanked me for a Short Spot which still retains some Spectrum interest. Once again, I've used much of my Spectrum material, so do please keep it coming. Many thanks, Roy; I'll come back to you in a few minutes.

Meanwhile, I must mention Ian Kennedy of Ramotswa, Botswana; you remember, I mentioned his problem last month. Carol Brooksbank has written back to me with some information about 'Ascidel'. As she says, the 'Ascidel' program was specifically for converting the files from 'File Manager'. You would have to write a program to suit the form of the database program you wanted to convert. ASCII DELINEATED is a common form of storing database records so that they are easily read by different programs. Field information is held between inverted commas with fields separated by a comma, and each record is terminated by CHR\$ 13+CHR\$ 10. So a record's information looks like this:-

```
"Format Publications", "34 Bourto
n Road", "Gloucester", "GL4 0LE",
```

You poke the codes for all that into memory and poke the next two bytes with 13 and 10. Convert all your records to this form, poke the bytes into memory, and save the resultant code block. Some database programs also store extra information in the file along with the records (number of fields in a record, number of records in the file, etc.), so your conversion program would have to ignore all those, and convert only the actual information from each record.

Word-processor files must contain only ASCII codes (no printer codes etc.) and be continuous - no end of line markers - with each paragraph terminated by CHR\$ 13. 'Wordmaster' files are already in this form, provided you delete any

command lines (like >fill) and all printer codes. 'Tasword' files need conversion, to strip out the spaces used to bulk each line out to 64 characters.

Converting files to pure ASCII form is the easy part. The difficulty is that PCs and SAM/Spectrum cannot read each other's discs. SAM users can get PC Suite from SD software that allows you, among other things, to format a disc in PC format on SAM, then save your ASCII files to it, so that a PC word-processor, database, etc., can read in the files just as though they had been created by the PC programs.

Well, it seems that Miles Kinloch is a Master of all trades in word-processing. Again, this is for the Spectrum and users of PCG's DTP pack. Miles writes that there is a problem with the PLUS D when the 'break' key is used to quit during printing. This forces an exit to Basic with the 'BREAK requested' report, with the result that when you enter RUN to restart the program, any text files which were present will be lost. The problem arises because Wordmaster was never intended to exit to Basic during printing, and is caused by the way the PLUS D's printing routine handles the Break key, rather than there being any fault in the actual DTP software.

There is, however, a way to cure it, which works by diverting the printer channel to make use of command code 57. Here is how to incorporate the fix into the 48k version of Wordmaster:-

1. Remove the RUN command from the end of line 100, and change the CLEAR address in that line to 24718.

2. Add the following lines to the Wordmaster Basic:-

```

200 FOR n=24720 TO 24724: READ
d: POKE n,d: NEXT n:Data 20
5,57,208,207,12
300 POKE #11,1: POKE 23749,144:

```

POKE 23750,96: RUN

This code represents:-

```

RST 8
DB 57
RET NC
RST 8
DB 12

```

If BREAK is pressed, the carry flag will be set on returning from the command code call, and this will invoke a "D BREAK - CONTINUE repeats" error. This error, unlike the +D's "BREAK requested", does not force an exit to Basic, but simply causes a return to the Wordmaster menu.

Incidentally, POKE @6,1 is no longer needed, as command code 57 always sends every code directly to the printer, regardless of the POKE @6 setting.

Many thanks, Miles.

It seems to be a month for word processors. So I hope you're all writing your Christmas tips for me: I shall need them by about the middle of November! Anyway, next tip on the list concerns the Spectrum and SAM, and is from Maurice Smith of Ipswich, Suffolk. Maurice writes that he had a little problem: to convert an Opentype Spectrum Tas128 file to a Tasword code file for use on SAM. Peter Garrick's *FORMAT* index was pressed into service, and turned up something by the evergreen L. G. Baumann in vol.4/6/10. This is a general program, but by cutting off a lot of the trimmings, and modifying the syntax for SAM opentype files, it ran first time. Here it is:-

```

10 CLEAR 31999: LET M=32000
20 CLOSE #12: LET SKIP=0,SCRN
=0,THECODE=0
30 PRINT AT 4,0;"ENTER NAME O
F Tasword File to converte
d": INPUT a$: PRINT " - ";
a$
35 PAUSE
80 CLS : OPEN #12;a$ IN
90 LET thecode=CODE INKEY$#12
100 IF thecode=13 AND skip=0 T

```


SC_WORD pro

£29.99

NEW VERSION 1.01. Available at the Gloucester 22 October show.

You may think this advert was produced on an expensive PC Computer, think again this whole 2 page advert was produced using SC_WORD pro the only advanced top of the range word-processor for the Sam Coupe.

SC_WORD pro uses it's own fonts, 8 are provided, others can be added with future font packs, available soon.

There are 11 sizes for each font, which are crisp, sharp and non jagged, with proportional spaced out letters and words, various justifications, the same quality you would expect from more expensive word-processors for the Amiga and PC Computers.

Text can be positioned anywhere to the nearest mm on all sizes of paper, so there is no restrictive 64 column text on A4 paper. No restrictive 32K edit area for your text, a generous 128K is provided, enough to store up to 32 pages.

The program is so easy to use, there are no control codes to fiddle around with, mouse supported as well as keys, ideal for beginners.

P
R
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E

SC_WORD pro can be used as a normal word-processor, outputting in standard 64 or definable column text using the printers built in fonts with L.print.

To achieve high quality text using the Fonts supplied, WORD pro goes into bit image graphics mode, like you do when dumping screen\$, the whole page of text and graphics such as the borders and grey shade paper colours are built up and dumped as one massive screen of 14 million dots.

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Centurian Centurian Italic Souvenir Souvenir Bold

[Icons]

[Icons] Pen Style GOLDMINE [Icons]

```
HEN POKE 23692,255: GOTO 1  
60  
110 IF thecode=13 AND skip=1 T  
HEN GOTO 180  
120 IF thecode=10 THEN GOTO 90  
130 POKE n,thecode  
140 LET skip=0: GOSUB 190  
150 LET n=n+1: GOTO 90  
160 IF INT (n/64)=n/64 THEN LE  
T skip=1: GOTO 90  
170 POKE n,32: GOSUB 190: LET  
n=n+1: GOTO 160  
180 FOR b=1 TO 64: POKE n,32:  
GOSUB 190: LET n=n+1: NEXT  
b: GOTO 90  
190 IF scrn=1 THEN PRINT CHR$.  
PEEK n;  
200 IF scrn=0 THEN PRINT AT 0,  
0;"wait: "; "address= ";n  
210 RETURN  
1000 CLOSE #12: CLS : PRINT AT  
4,0;"Enter name for TW2 fi  
le": INPUT ; nm$  
1010 SAVE nm$ CODE 32000,n-3200  
0  
9000 DEF PROC bak  
9010 SAVE OVER "TW3to2"  
9020 END PROC
```

Incidentally, the program is also directly listed into the letter by use of Mike Haines' 'list2t2' routine, the letter being typed with a customised version of Dave Hall's 'Masterscratch', word-processor, derived from 'scratch' which, in turn, was originally developed as a 'scratch pad' by various members of the Spectrum Discovery Club. The ingenuity of Spectrum users always amazes me! Thanks for the contribution, Maurice.

You know, I feel that there is a still nenter way of doing this that I have seen at sometime, but I must be going gaga, for I can't remember where, or what on earth it is, though I vaguely remember someones POKEing a header somewhere. Come on, you ingenious Spectrum users. How about it?

Next, a few additions and amendments from Ettrick Thomson of Aldeburgh, whose 'Two-Ants' program for SAM was in last month's *Short Spot*. He mentions that the phenomenon he called the

'Kilkenny' mode is mentioned in the 'Computer Shopper' article, though not, of course, under that name. The values x1=112, x2=132 also, in fact, give Kilkenny behaviour, but it takes a long time before this is evident. Return to a blank screen occurs for g=104000 approximately, and takes two hours or thereabouts. The values x1=125, x2=132 showed no sign of Kilkenny behaviour up to g=218290. Many thanks, Ettrick.

I have just turned up an old letter from Thurstan Felstead of Middlesex, in which he mentions my review of the SAMBUS, where I pointed out that it was short of power. He also quotes some of the literature which eventually arrived with the finished SAMBUS (but the poor reviewers never had it), which is maybe worth repeating. "All devices connected to the SAMBUS will use up some of the available power. All future peripherals produced will carry a 'Loading Factor' 2 number which will be located near the device's serial number and prefixed by the letters 'LF'. If the 'Loading Factor' total is above 200 units for all the devices connected, an external 5v power supply will need to be plugged into the SAMBUS via the external power connector. Phone SAMCo for details."

Also mentioned are the LF factors for peripherals designed before the SAMBUS went into production: Each Internal SAM Drive 50 LF Units, External Drive 15 LFUs, Parallel Printer Interface 15 LFUs, Comms Interface 20 LFUs, The Voicebox 15 LFUs.

Of course Wase isn't as completely dumb as the letter suggests - although there was only preliminary documentation, there was a clear socket on the gadget. But, a phone call to SAMCo for an appropriate power supply produced nothing - and as far as I know, they never sold a suitable power pack. As I seemed to get a lot of errors when I had

the SAMbus connected, and it took up quite a lot of room, I eventually consigned it to the shelf. It's there, still. Does anyone know a specification for a suitable power supply?

Let's stay with SAM now. Ever tried to key in a character set? Robert Brady of Evington, Leicester, has the answer with a little routine called 'grafdo', which KEYINs it.

```

10 DEF PROC grafdo a,b,lne,st
  N
20 DEFAULT stp=10
30 LET n=UDG CHR$ a
40 DO
50 KEYIN STR$ lne+" POKE "+ST
  R$ n+","+"STR$ PEEK n
60 LET lne=lne+stp
70 LET n=n+1: LOOP UNTIL n=UD
  G CHR$ (b+1)
80 END PROC
1000 REM Written in 1990!
1020 REM When I was about 11
1030 REM A - start character
1040 REM B - end character
1050 REM LNE - Line to start fr
  om
1060 REM STP - Line step
1070 REM What it does? It KEYIN
  s the DATA of the UDGs bet
  ween A&B I think.
1999 REM PS. STP defaults to 10
  And just to keep us happy, there's a
  couple of games to keep us out of
  mischief in the run-up to Christmas. The
  first one is 'dice'; as Robert says "A
  version of the two-dice thing, except that
  the display's a bit different. It makes the
  highest one always at the top".
10 MODE 4: CSIZE 8,8
20 DIM a(12)
30 LET max=0
40 disp
50 FOR n=1 TO 500000
60 LET A=RND(5)+1,B=RND(5)+1,
  C=A+B
70 LET a(c)=a(c)+1
80 IF a(c)>max THEN LET max=a
  (c)
90 disp
100 PRINT AT 0,0;n
110 NEXT n
1000 DEF PROC disp

```

```

1010 LOCAL n
1020 CLS
1030 FOR n=2 TO 12
1040 IF NOT max THEN PLOT n*8,a
  (n): DRAW 8,0
1050 IF max THEN DRAW TO n*8,a(
  n)/max*175: DRAW 8,0
1060 NEXT n
1070 END PROC

```

And finally, there's 'Hotcold'. This is a version of the Hotcold game for those of you with a SAM mouse. The aim is to move it so that the number says 100.

```

10 MODE 4: CSIZE 8,8: LET yos
  =-16
20 LET x=RND(255),y=RND(191)
30 LET xm=XMOUSE,ym=YMOUSE
35 IF xm>255 THEN LET xm=255
37 IF ym>191 THEN LET ym=191
40 LET tem=100-INT ((SQRT ((A
  BS xm-x)^2)+((ABS ym-y)^2)
  /318)*100)
45 PRINT AT 0,0;tem;" "
50 LET temp=POINT(xm,ym)
60 PLOT PEN 15,xm,ym
70 DO : LOOP UNTIL xm<>XMOUSE
  OR ym<>YMOUSE
80 PLOT PEN temp,xm,ym
90 GOTO 30

```

Many thanks, Robert.

Finally, I shall end, as I started, with the prolific Roy Burford. His first one's a new version of CATLOAD for the Spectrum. This has previously been published in defective form, since there is a three column screen, and therefore a nominal sixty-three screen-full; a full disc brings up the dreaded 'SCROLL?'. To avoid this, there is now a front/rear catalogue split and also a RAMdisc SAVE for 128k users.

```

1 REM Vol3-No12. FORMAT. Augu
  st 1990. Short Spot. p7. Ca
  tload.
2 REM Revised to ZX Spectrum+
  128K by S.C.R.Burford 2811
  92.
3 REM Catalogue display split
  to avoid scroll exit probl
  em with full-ish disc.
5 REM CATLOAD by Istvan Ordog
  , Hungary. 28.02.1990
7 POKE 23658,0
8 PRINT " Catalogue display/

```

```

  load program""
9 PRINT "Put source disc in d
  rive:"
10 PRINT "Drive number of sour
  ce disc(1 or 2)?(0 to exit)
  : "; INPUT d$: PRINT d$
15 IF d$<>"0" AND d$<>"1" AND
  d$<>"2" THEN GOTO 10
17 IF d$="0" THEN STOP
20 LET d=VAL d$
21 PRINT "Front half of cat
  F""Rear half of cat R"
22 INPUT w$
23 IF w$<>"f" AND w$<>"r" THEN
  GOTO 22
24 IF w$="f" THEN LET b=1: LET
  e=40: GOTO 30
25 LET b=41: LET e=80
30 LET sor=3: LET bat=0: LET k
  ey=0: PAPER 0: BORDER 0: PE
  N 7: CLS
40 PRINT #1; AT 0,0; INVERSE 1
  ;" PLUS D Loader
  "
60 GOSUB 1000: LET bat=0
70 PRINT #1; AT 0,0;"Move curs
  or over number required""(
  blank to abort) press ENTER
  "
95 PAUSE 20
100 PRINT AT sor,11*bat; OVER 1
  ; FLASH 1;" "
130 LET key=CODE INKEY$
140 IF key THEN PRINT AT sor,11
  *bat; OVER 1; FLASH 0;" "
150 LET sor=sor+((key=54 OR key
  =10) AND sor<21)-((key=55 O
  R key=11) AND sor>2)
155 LET bat=bat+((key=56 OR key
  =9) AND bat<2)-((key=53 OR
  key=8) AND bat>0)
160 IF key=13 THEN GOSUB 200; G
  OTO 1200
190 PAUSE 20: GOTO 100
200 LET l$="": LET t=11*bat
220 FOR s=t TO t+1
230 LET e$=SCREEN$(sor,s)
232 LET l$=l$+e$
240 NEXT s
260 LET key=0
270 PAUSE 50: RETURN
1000 REM List of Basic files, Au
  torun Code files and Snapsh
  ot files
1010 GOSUB 1070: PRINT AT 3,0;
1015 LET ml=ml+256*(b-1)
1020 FOR p=b TO e: IF PEEK ml=1
  OR PEEK ml=5 OR (ml=4 AND P
  EEK (ml+218)+256*PEEK (ml+2

```

```

19)+<>65535 AND PEEK (ml+218
  )+256*PEEK (ml+219)<>0) AND
  PEEK ml<>0 THEN PRINT TAB
  bat;(" " AND p<10);p;" ";
  FOR n=1 TO 7: PRINT CHR$ PE
  EK (ml+n);; NEXT n: LET bat
  =bat+11: IF bat>22 THEN LET
  bat=0
1030 LET ml=ml+256: NEXT p: PRIM
  T
1040 RETURN
1070 REM Reading Catalogue
1080 LET m=30000: FOR t=0 TO 3:
  FOR s=1 TO 10: LOAD @d,t,s,
  m: LET m=m+512: NEXT s: NEX
  T t
1100 IF PEEK 30009>32 THEN LET c
  $=CHR$ PEEK 30008+CHR$ PEEK
  30009
1110 IF PEEK 30009>32 THEN LET c
  $=d$
1130 IF w$="f" THEN PRINT "Front
  half of cat, drive No ";d:
  GOTO 1140
1135 PRINT "Rear half of cat, dr
  ive No ";d
1140 LET bat=0: LET ml=30000: RE
  TURN
1200 BORDER 7: PAPER 7: PEN 0: C
  LS
1201 PRINT "Save to 128K RAM dis
  c Y/N: ";
1202 INPUT q$: PRINT q$: IF q$<>
  "y" AND q$<>"n" THEN GOTO 1
  201
1204 IF q$="n" THEN GOTO 1208
1205 PRINT "Saving CATLOAD to R
  AM disk as""
  "C""": SAVE "C"
1206 PRINT "Press any key:"; P
  AUSE 0
1208 IF l$=" " THEN CLS : GOTO
  7
1210 PRINT AT 10,0;"Press any ke
  y to Load p";l$
1215 PRINT "" Ignore Erro
  r message"" followi
  ng load."
1220 PAUSE 0
1225 BORDER 7: PAPER 7: PEN 0
1230 LOAD p(VAL l$)

```

You know; the trouble with life is that it's like a set of steps: no sooner have I finished one Short Spot than it's time to start another; forever onward and upward. Let's end with a little snippet from Roy to illustrate this!

```

1 REM Optical illusions.
2 REM Data derived for ZX Spectrum+ 128K by B.C.R.Burford, source not known, circa 1980.
90 PRINT #0; AT 0,0;" Optical Illusion Steps"
100 READ a,b,c
110 IF a>255 THEN GOTO 180
120 IF a>1 THEN GOTO 160
130 IF a=0 THEN PLOT b,c: GOTO 100
140 DRAW b,c
150 GOTO 100
160 PRINT AT 10,3;"Topside or"
    " Underside?"
165 PRINT #0; AT 1,0;" Press a ny key for next:" PAUSE 0
170 GOTO 100
180 PRINT AT 10,21;"Unending";
    AT 20,21;"Ascent!"
190 PRINT #0; AT 1,0;" Press a ny key to exit:"
200 PAUSE 0: STOP
300 DATA 0,97,51,1,-83,0,1,0,72
    ,1,20,15,1,85,0,1,0,-72,1,-
    22,-15,0,14,117,1,7,0,1,0,-
    6,1,7,0,1,0,-6,1,7,0,1,0,-6
    ,1,7,0,1,0,-6,1,7,0,1,0,-6,
    1,7,0,1,0,-6,1,7,0,1,0,-6,1
    ,7,0,1,0,-6,1,7,0,1,0,-6,1
    ,7,0,1,0,-6,1,7,0,1,0,-6
310 DATA 0,34,138,1,0,-6,1,7,0,
    1,0,-6,1,7,0,1,0,-6,1,7,0,1
    ,0,-6,1,7,0,1,0,-6,1,7,0,1,
    0,-6,1,7,0,1,0,-6,1,7,0,1,0
    ,-6,1,7,0,1,0,-6,1,7,0,1,0,
    -6,1,7,0,1,0,-6,1,7,0,1,0,-
    6,1,7,0,1,0,14,117,1,20,15,0,
    21,117,1,20,15,0,21,111,1,2
    0,15,0,28,111,1,20,15,0,28,
    105,1,20,15,0,35,105,1,20,1
    5,0,35,99,1,20,15,0,42,99,1
    ,20,15
320 DATA 0,43,93,1,20,15,0,49,9
    3,1,20,15,0,49,87,1,20,15,0
    ,56,87,1,20,15,0,56,81,1,20
    ,15,0,63,81,1,20,15,0,63,75
    ,1,20,15,0,70,75,1,20,15,0,
    70,69,1,20,15,0,77,69,1,20,
    15,0,77,63,1,20,15,0,84,63,
    1,20,15,0,84,57,1,20,15,0,9
    1,57,1,20,15,0,91,51,1,20,1
    5,2,2,2
330 DATA 0,221,132,1,8,-5,1,0,-
    3,1,8,-5,1,0,-3,1,8,-5,1,-8
    ,-5,1,0,-3,1,-8,-5,1,0,-3,1
    ,-8,-5
340 DATA 1,-8,5,1,0,-3,1,-8,5,1

```

```

,0,-3,1,-8,5,1,0,-3,1,-8,5,
1,0,-3,1,-8,5,1,0,-3,1,-8,5,
1,0,-3,1,-8,5,1,0,-3,1,-8,
5,1,0,-3,1,-7,4,1,8,4,0,229
,127,1,-8,-5,1,0,3,1,-7,-5,
1,0,3,1,-7,-5,1,0,3,1,-7,-5
,1,0,3,1,-7,-5,1,0,3,1,-7,-
3,1,0,3,1,-7,-5,1,0,3,1,-3,
-2
350 DATA 0,229,124,1,-8,-5,1,8,
-5,1,0,-6,1,8,-5,0,237,106,
1,-8,5,1,8,5,0,237,119,1,-8
,-5,0,221,119,1,0,-19,0,229
,98,1,-8,5,1,8,5,0,229,95,1
,-8,5,1,-8,-5,0,213,102,1,-
8,-5,0,205,104,1,-8,-5,0,19
7,106,1,-8,-5,0,189,108,1,-
8,-5,0,181,110,1,-8,-5,0,17
3,112,1,-8,-5,0,165,114,1,-
8,-5
360 DATA 0,213,102,1,5,-3,0,205
,104,1,5,-3,0,197,106,1,5,-
3,0,189,108,1,5,-3,0,181,11
0,1,5,-3,0,173,112,1,5,-3,0
,165,114,1,5,-3,0,158,114,1
,4,-2,0,214,130,1,7,-5,0,20
7,128,1,7,-5,0,200,126,1,7,
-5,0,193,124,1,7,-5,0,186,1
22,1,7,-5,0,179,120,1,7,-5,
0,172,118,1,7,-5,0,165,116,
1,7,-5
370 DATA 0,221,132,1,-4,-3,0,21
4,130,1,-4,-3,0,207,128,1,-
4,-3,0,200,126,1,-4,-3,0,19
3,124,1,-4,-3,0,186,122,1,-
4,-3,0,179,120,1,-4,-3,0,17
2,118,1,-4,-3,0,165,116,1,-
4,-2,0,245,111,1,0,-40,1,-2
4,-14,1,-71,41,1,0,11,0,221
,58,1,0,31,300,300,300

```

And that's really really absolutely and definitely all for now. If you want some respectable Christmas tips, get thinking; you've only a few days after November's issue hits the streets before I will have to send in December's copy, so GET TYPING NOW, and address the Short Spots to:-

John Wase,
Green Leys Cottage,
Bishampton,
Pershore,
Worcs,
WR10 2LX.

See you next month.

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BASICally Mousing...

Or Better Ways To Use A SAM Mouse In Basic

By:- David Finch.

One area that has not been covered before in *FORMAT* is how to use the SAM Mouse within your own programs.

I have also used my mouse lots in various programs - including some of my own creations. I am about to show you how easy it is to do so...

Beginners following my *BASICally Speaking* series may like to read and learn from this article, but don't worry if you get confused. Speccy owners, sorry but this is SAM mouse only.

The program will move a pointer about the screen and return to your program when a button is pressed, telling you exactly when on the screen the pointer was, and which button was used. So first we need a pointer.

```
10 DEF PROC drawarrow
20 DRAW 8,0
30 DRAW -2,-2
40 DRAW 3,-3
50 DRAW -4,-4
60 DRAW -3,3
70 DRAW -2,-2
80 DRAW 0,8
90 END PROC
```

Type:-
PLOT 128,97: drawarrow
to see the arrow.

My first thought was to GRAB this, along with a mask, and save it to disc to load when the program runs. (Beginners, don't worry about this, it will become clear in a few months time). However, there is no point since you have the program to create it in Basic. If you wish, you could design a complicated pointer in FLASH!, and you would have to save it

to disc.

You can't do anything in Basic with the mouse until you have loaded the mouse driver code from the disc you got in your mouse package. It is called "mdriver" and needs to be on any disc that you may use these procedures on. (It has nothing to do with Revelation's DRIVER software).

COPY "mdriver" to "*" will copy it from your mouse disc to any other. However, I found the SAMDOS won't do this (MasterDOS will), you need to LOAD "mdriver" CODE, then copy it! Why?

The next procedure, called SetUpMouse will load the driver in, draw the arrow and its mask, and grab them. For tidiness, I have hidden this drawing in SCREEN 2, so that it is not seen.

Opening screens makes them available in memory, closing makes them unavailable again. Note that I have CLOSED screen 2 before I open it because if the program was ESCaped from while the procedure was running, the next time it is run will give the SCREEN ALREADY OPEN message. I have also closed it after the sprites are grabbed for tidiness. You can CLOSE a closed screen (stays closed), but you can't OPEN an open screen.

Also, I want to place the whole program above line 64000 so that it can be merged into any other program.

RENUM 10 TO LINE 64160

This command places the program so far in the correct place

Now type in the following:-

```
64000 DEF PROC SetUpMouse
64010 LOAD "mdriver" CODE
64020 SCREEN 1
64030 CLOSE SCREEN 2: OPEN SCREE
N 2,4: DISPLAY 1: SCREEN 2
64040 PAPER 0: PEN 15: CLS
64050 DIM arrow$(3,53)
64060 LET yos=-18
64070 PLOT 0,191
64080 drawarrow
64090 PLOT 12,191
64100 drawarrow
64110 FILL 13,190
64120 GRAB arrow$(1),0,191,10,10
64130 GRAB arrow$(2),12,191,10,1
0
64140 SCREEN 1: CLOSE SCREEN 2
64150 END PROC
```

This procedure need only be run once at the start of any program that uses the mouse procedure, which is the procedure that you are about to type in.

It is based on two loops, one inside the other. The inner loop finds out the position of the mouse and whether a button has been pressed. If nothing has changed then it keeps looping. This prevents the arrow from flickering.

The outer loop GRABs the background and places the arrow sprite on the screen. When the mouse is moved or pressed it replaces the background and loops if there wasn't a button press (when it loops it redraws the arrow). When a button has been pressed it makes x be the x co-ordinate of the pointer position, and y the y coordinate. The variable btn is 1 if the left button was pressed, 3 for the right, 4 for both.

A nice feature is that, when you call the procedure again, the pointer will be where you left it. If you want it elsewhere, simply change msx and msy.

So type it in...

```
64250 DEF PROC mouse
64260 DEFAULT msx=128,msy=96
64270 DPOKE 23446,msx
64280 DPOKE 23448,msy
```

```
64290 DO
64300 GRAB arrow$(3),msx,msy,10,
10
64310 PUT msx,msy,arrow$(1),arro
w$(2)
64320 DO
64330 LET newx=XMOUSE,newy=YMOUS
E
64340 LET btn=(1 AND BUTTON 1)+(
3 AND BUTTON 3)
64350 LOOP UNTIL (NOT (msx=newx
AND msy=newy) OR btn)
64360 PUT msx,msy,arrow$(3)
64370 LET msx=newx,msy=newy
64380 LOOP UNTIL btn
64390 LET x=msx,y=msy
64400 END PROC
```

You may like to save all this to disc!

To show you how easy it is to use these procedures, here is a program that draws on screen. Press the left button to plot a point, the right button draws a line from the last point plotted, and both buttons together clear the screen.

```
10 SetUpMouse
20 DO
30 mouse
40 IF btn=1 THEN PLOT x,y
50 IF btn=3 THEN DRAW TO x,y
60 IF btn=4 THEN CLS
70 LOOP
```

If you were programming these seven lines from scratch you would merge your mouse procedures into this program. You must ensure that a disc containing the mouse driver is in the drive.

You can design icons in FLASH!, GRAB them and PUT them in your programs, and use this to point and click on them. EASY!



SOMETHING COLOURFUL

By:- Carol Brooksbank.

This month we shall adapt the monochrome shaded screen dump, from last month's article, to print in colours with a colour printer. We shall still be using shading patterns, to distinguish between the BRIGHT 0 and BRIGHT 1 forms of each colour, but we shall not need so many patterns because we have no need to distinguish between individual colours by shading.

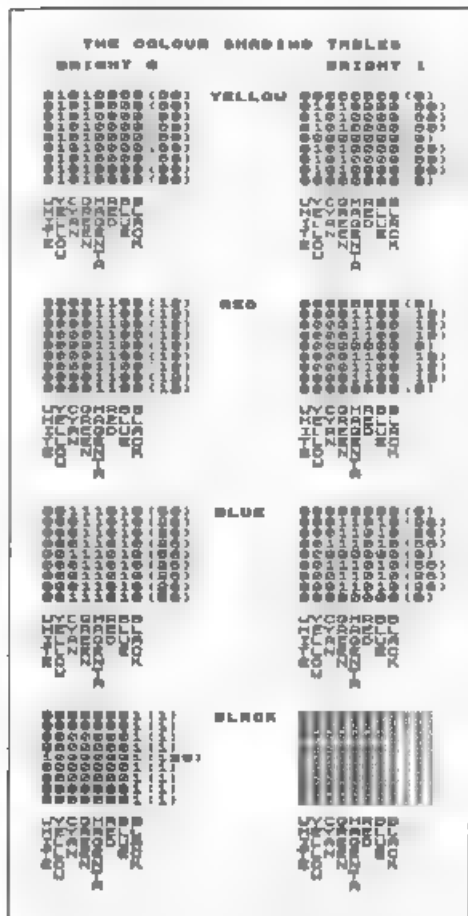
The solid fill we used for black last month will be used for black again, and also for blue, red, magenta, (we shall use purple to represent magenta), green and yellow BRIGHT 0. For those five colours BRIGHT 1 we shall use the pattern we used for red BRIGHT 0 last time. The two cyans will be two paler shades of blue, and for those we shall use the same pattern again for cyan BRIGHT 1, but for cyan BRIGHT 0 we shall use the pattern used previously for green BRIGHT 1. Finally, white will be as before, the shading for white BRIGHT 0 being printed in black, so it will appear a very pale grey. You can check the pattern designs and bit settings from last month's fig. 3.

A colour ribbon has four colours - yellow, red, blue and black. To print green, orange or purple it makes two passes in different colours. To print purple, for instance, a red and a blue pass are made. Overprinting soon causes the ribbon colours to become muddy, especially if the darker colour is printed first, because on the second pass some of

the previous colour is rubbed from the paper onto the ribbon. You can make the ribbon last longer by making sure that the lighter colour is always printed first, but unfortunately the printer itself does not always do this. My printer, for instance, does the blue pass before the yellow when set to print in green. So we are not going to use the printer's green and purple settings. We shall make sure that the printing is always done in the order yellow, red, blue, black and use our shading tables to achieve the mixed colours.

There will have to be eight shading tables, for the BRIGHT 0 and BRIGHT 1 versions of each of the four ribbon colours. The tables will be constructed exactly as last month's tables were, except that bits will only be set in the colour columns for any colours in which that colour pass is involved. Yellow, for instance, will be involved only in printing yellow and green, so pattern bits will be set in those columns and all the other columns will contain only zeros. Fig. 1 shows the pattern tables for the four colour passes. Only blue has bits set in four columns because it is involved in blue, green, cyan and magenta. Black is involved in white BRIGHT 0, but in the BRIGHT 1 table only the black column is set.

So where a monochrome dump makes one pass per line of the dump, a colour dump must make four, one for each colour, using different shading tables



and sending the correct colour selection codes for each pass. Between each pass we must send a carriage return without a linefeed so we print over the same line of paper again, and after the fourth colour we must send both carriage return and linefeed to move on.

There must also be provision for varying the number of passes per colour. One pass, even with a new ribbon, gives a rather thin, pale dump useful only for a draft copy. Unless your ribbon is very old, three passes gives a good colour

density

So, to the listing I am only going to give you the changes from last month's listing, so load that into your assembler and make the following alterations:-

Just below the label START: Delete the instructions which send the linefeed settings, so that CALL 5633 is followed immediately by LD HL,22496

Delete all the lines from LAB15 to the line above LAB11 inclusive, and replace them with the following lines -

```

LAB14      RLA
           DJNZ LAB14
           AND (HL)
LAB15      PUSH BC
           PUSH HL
           LD A,4
           LD (COLFLAG),A ;set up
           the number of colour
           r passes
LAB17      PUSH HL ;save start of
           line we are on
           LD A,(COLFLAG) ;check
           which colour we are
           on and call appropri
           ate subroutine
           CP 4
           JR Z,YELL
           CP 3
           JR Z,RD
           CP 2
           JR Z,BLU
           CALL BLACK
           JR LAB16
YELL      CALL YELLOW
           JR LAB16
RD        CALL RED
           JR LAB16
BLU      CALL BLUE
LAB16     LD B,2 ;number of pass
           es for each colour -
           higher number darke
           ns printout
LAB18     PUSH BC ;save number o
           f passes left to do
           PUSH HL ;save start of
           row we are on
           LD A,27 ;send codes fo
           r ESC
           RST 16
           LD A,42 ;--+
           RST 16
           LD A,4 ;graphics ESC

```

```

** 4 (can be 5 if yo
ur printer supports
ESC "" 5)
RST 16
LD A,64 ;bit image dat
a for
RST 16
LD A,2 ;dots per line
RST 16
LD B,24 ;counter for n
umber of character s
quares in a screen c
olumn

```

These lines are the section which checks which colour pass we are doing - using a counter, COLFLAG - and calls up the appropriate colour subroutine to bring in the correct shading tables and send the colour selection codes to the printer. The bit image graphics mode and dots per line are sent at the start of each pass.

Now delete the lines from LAB10 to the line above LAB12 inclusive and replace them with the following:-

```

LAB10     POP BC
           DJNZ LAB11
           LD A,27 ;set linefeed
           to nil (0/216inch)
           RST 16
           LD A,106
           RST 16
           LD A,0 ;change to 1 fo
           r printers which do
           not allow linefeed o
           f 0/216in
           RST 16
           LD A,13 ;send a carria
           ge return at end of
           each pass
           RST 16
           POP HL ;fetch start of
           line
           POP BC ;fetch number o
           f passes per colour
           DEC B
           JP NZ,LAB18 ;jump back
           if more passes to d
           o in this colour
           LD A,(COLFLAG) ;check
           if all colours done
           DEC A
           LD (COLFLAG),A ;store
           decremented flag

```

```

POP HL ;fetch start of
line we are on and
JP NZ,LAB17 ;jump back
if more passes to d
o for this line
LD A,27 ; send codes f
or ESC
RST 16
LD A,65 ;"A"
RST 16
LD A,6 ;line feeds of
6/72 in
RST 16
LD A,13 ;send <CR>
RST 16
LD A,10 ;line feed. CH
ANGE TO MOP NOP if p
rinter does auto LF
RST 16 ;CHANGE TO MOP
if auto LF
POP HL
POP BC
DEC C
DEC C
JR NZ,LAB12
LD C,8
INC HL

```

At the end of each colour pass the linefeed is changed to nil, so that printers which do an automatic linefeed with a carriage return will not move the paper. If your printer will not support 0/216, 1/216 can be used because the infinitesimal linefeed involved will make very little difference to the finished dump unless you are using more than three or four passes per colour. The program loops back if there are more passes to be done in the current colour, or decrements COLFLAG if the colour is finished. If all the colours are done for this line, the linefeed is set to 6/72in and a carriage return and linefeed sent. Owners of printers which send an automatic linefeed should change the instructions which send the linefeed to NOP NOP NOP, as described last month.

Now, Immediately above TABLEADD. The four colour subroutines are inserted here, after the RST at the end of the NOTBRI subroutine.


```

YELLOW  PUSH HL ;preserve regi
        store
        PUSH DE
        PUSH BC
        LD HL, YELL0 ;bring yel
        low pattern tables i
        nto use
        LD DE, BRIGHT0
        LD BC, 9
        LDIR
        LD HL, YELL1
        LD DE, BRIGHT1
        LD BC, 9
        LDIR
        LD A, 27 ;send codes fo
        r yellow printing
        RST 16
        LD A, 114
        RST 16
        LD A, 4
        RST 16
        POP BC
        POP DE
        POP HL
        RET

```

This is the YELLOW subroutine. RED, BLUE and BLACK must be written too. They are exactly the same, except that you must change the label to the appropriate colour name, change the table names and the number which selects the colour for printing at the places I have marked *.*. So, copy this subroutine out three more times, using the names and values given below:-

```

RED, RED0, RED1, 1
BLUE, BLUE0, BLUE1, 2
BLACK, BLAK0, BLAK1, 0

```

After the subroutines come the eight colour shading tables -

```

YELLOW  DEFB 80,80,80,80,80,80
        ,80,80,80
YELLOW1  DEFB 0,80,80,80,80,0,80,8
        0,80,0
REDO     DEFB 12,12,12,12,12,12
        ,12,12,12
RED1     DEFB 0,12,12,12,0,12,1
        2,12,0
BLUE0    DEFB 58,26,26,26,58,26
        ,26,26,58
BLUE1    DEFB 0,26,26,58,0,58,2
        6,26,0
BLAK0    DEFB 1,1,1,1,129,1,1,1
        ,1

```

```
BLAK1    DEFB 1,1,1,1,1,1,1,1,1
```

Change BRIGHT0 and BRIGHT1

```

BRIGHT0  DEFB 9
BRIGHT1  DEFB 9

```

This is because the shading tables to be used for a particular colour are copied to these locations when needed, so no permanent tables are now stored there

Finally, our new variable:-

```
COLFLAG  DEFB 1
```

is inserted between NUMSTORE and END.

This is the variable which counts the number of the colour we are doing. If it holds 4, yellow is printed, 3 means red, 2 means blue and 1 means black. When it reaches 0, that line of printing is done.

Those changes will give you 557 bytes of object code when the program is assembled.

If you ORG the code to 50000, and load it to that address, RANDOMIZE USER 50000 will print your colour dump. Remember that colour dumps take much longer than monochrome ones to print. A pale one, with only one pass per colour will take four times as long as a monochrome. Three passes per colour takes twelve times as long. More than three passes - well, you had better have something else to do while all this is going on.

If you want to darken any colours - blue BRIGHT 0 in particular is much lighter than the screen equivalent - try changing the BLAK0 table so that a fine shading of black is added to blue. All you have to do is change the middle byte of the BLAK0 table. Adding a dot in the centre of the blue column, to give the same shading as used for white BRIGHT 0 on top of the solid blue colour, would add 2 to the value of that byte in the BLAK0 table, giving:-

```
BLAK0    DEFB 1,1,1,1,131,1,1,1,1
```

I will leave you to work out how to make similar changes to other colours.

Finally, some useful POKES:-

50054 holds the number of passes per colour - POKE with 1 for draft, 3 or more for final copies.

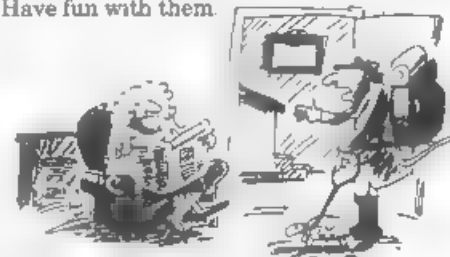
50064 holds the ESC "*" graphics mode. Changing that can give dumps in different sizes and proportions.

50178 holds the number of 216in linefeed used between colour passes. Ideally it should be 0, but some printers do not allow 0/216. Consult your printer handbook and POKE with 1 if this is the smallest linefeed you can do.

50212,50213,50214,50233,50234,50235 POKE all these with 0 to suppress the linefeed if your dump has a venetian

blind appearance. It is caused by the printer and software both producing a linefeed

So there you have it - two screen dumps which recognise and print all the colours in the Spectrum screen, in black, or in colour, depending on your printer. Have fun with them



"If I see you in three months doing I'm going to take the tortoise for a walk around the block"

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MACHINE CODE

WITHOUT THE TEARS

A Follow-up By:- Carol Brooksbank.

CALL STKPOS ;stack pos
CARRYON ... the rest of program

STKPOS will be a subroutine which stacks the number exactly as I showed you in "M/C." parts 18-19, but STKNEG must go like this:-

```
(using STK5BYT and VAL)
STKNEG LD DE,NUM+1
;the first character of NUM is
;"-", so we move past it
LD BC,ENDNUM-NUM-1
;because we missed out the first
;character the string is 1 byte
;shorter
LD A,255 (Sam 0)
CALL STK5BYT
;stack the string parameters
LD B,VAL (Sam omit)
RST 40
DEFB VAL
;stack the positive number
DEFB NEGATE
;make the number negative
DEFB ENDCAL
RET
```

(Using DEC FPC) Our number will be stored as -

```
NUM DEFB "-2.5"
DEFB 13
```

The subroutine goes:-

```
STKNEG LD HL,NUM+1;miss out " "
CALL DEC.FPC
;stack the positive number
RST 40
;make the number negative
DEFB ENDCAL
RET
```

I gave the literals for NEGATE in the Spectrum/Sam literals list in part 17

I hope this clears up everyone's difficulties

I can see from my postbag that people are a bit confused about how you put negative numbers on the FPC stack, using either STK5BYT to stack the parameters of a number held in memory as a string, followed by RST 40 and VAL, or using the DEC FPC subroutine I gave in *M/C Without The Tears* part 19

You cannot simply use a string like '-2.5', stack it in the ordinary way and hope that VAL or DEC.FPC will work out that this is a negative number. You will generate an FPC error, because, unlike the Basic VAL command, both the FPC VAL routine and DEC FPC expect all the characters in the string to be either a digit or a decimal point, and they will be bemused by '-'

What you must do is check the first character of the number yourself, and if it is '-', call a STKNEG routine. If not, call a STKPOS routine. You can, to be absolutely correct, check the first character to make sure it lies between 0 and 9 or is a decimal point before assuming it is a positive number, but for now we will assume that it either starts with '-' or is a number. Let us assume that somewhere in the listing is -

```
NUM DEFB "-2.5"
ENDNUM EQU $
```

```
;To stack it, we have
LD A,(NUM)
CP "-" ;is it negative?
JR NZ,POSIT ;jump if not
CALL STKNEG ;stack neg
JR CARRYON
;jump past the stack positive
;routine POSIT
```

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Uni-Dos Corner

A Special Edition By:- Steve Warr, The Author Of Uni-DOS.

Now and again I get a piece of mail from one of the Uni-DOS users around the world, but I was flabbergasted when I received 3 fan-letters IN ONE WEEK, requesting information about the Uni-DOS command codes - they were even from different people!

Well once I'd checked this wasn't just the postman getting it wrong again (the PO, bless their hearts, appears to believe that my small house has about 30 residents and contains both a dental clinic and a mail order company,, since this is much more mail than I'm used to, even including all the reminders the nice people at my bank keep sending me, and considering it takes some perseverance to actually get my correct address (even **FORMAT** gets forwarded), the chances are that hordes of other people are desperately awaiting this vital information to brighten their humdrum lives. Well maybe!

Anyway for those of you who don't know, don't care or have been living on Jupiter for the last year with only your Nintendo for company (in which case my advice is get a life transplant), Uni-DOS is a G(+)-DOS upgrade for anyone with a DISCIPLÉ or PLUS D glued (nailed?, blue-tacked?) on the back of a Spectrum. A command code (CC) is a way of doing all those exciting(?) DOS type things (such as loading/saving data) directly from machine code, without the small hassle of disassembling the entire DOS to find out where the hell the smoghead

programmer put the correct routine.

The most recent versions of G(+)-DOS have 21 CC's in total. Great says you, the world will truly be a happier place, can I go home yet? No the lecture hasn't finished yet says I - the problem is that to do something pitifully simple like maybe loading a screen picture, you need to use at least 3 of these things! Sir Clive help you (well maybe not actually, judging from his past form) if you want to do something really complex such as actually creating your own file. I'll go and get a diploma in advanced computing says you. Don't bother says I, just put your straight-jacket back on.

So Uni-DOS added an extra 13 CC's (cunningly numbered from 72 to 84) with the purpose of simplifying the whole unpleasant business and because Uni-DOS generally allows you to do more things than G(+)-DOS anyway (Huzzah!). Each Uni-DOS CC emulates one of the Uni-DOS BASIC commands and requires a mere 3 lines of machine code to do it:-

```
LD IX,<Pointer to some data>
RST 8
DEFB <CC number>
```

If it all went horribly wrong and the CC failed to finish for some reason, the DOS will return with the carry flag set and with the A register holding the error number. So for example, if you were really neanderthal enough to try running a CC to load a screen picture without first putting a disc in the drive, the carry flag would get set and A would equal 133

for 'Check disc in drive you dumb ape' The other error codes can be found in the Uni-DOS manual for the rest of us who climbed out of the trees and then chopped them all down to make paper.

Those of you still awake will notice that we must set the IX register to point to 'some data' before running the CC. For an entirely arbitrary reason I'm going to call this data area the 'Dstream' but G(+)-DOS users will know it as the 'UFIA'. This data area is used to pass parameters to the DOS and can be considered as being divided into sub-areas or 'fields'.

```

DRIVE: DEFB <drive no.>
PROGM: DEFB <program no.> or <stream type>
CHAN: DEFB <channel no.>
DEVICE: DEFB <"D" or "P">
TYPE: DEFB <filetype>
NAME: DEFB 10 ;10 byte filename
DATA(1):DEFB 1 ;9 byte general data area
DATA(2):DEFB 1
DATA(9):DEFB 1

```

Total = 24 bytes. (For experienced users of G(+)-DOS CC's:- Uni-DOS performs HKFERs automatically for its extra CC's so don't do one yourself. For the rest of us, this sentence is complete anorack-speak and should be treated with the contempt it deserves!).

The filename field (which may contain the wildcards "*" and "?") can be stored in either of 2 ways:-

1) A simple string of characters not containing any "/"s and padded with spaces to fill all 10 bytes.

2) A pointer to a longer name which may contain sub-directory names. The actual string of characters must be stored elsewhere in Spectrum memory. Only the first 5 bytes of the NAME field are actually used in this case.

NAME: DEFB "/" (add 128 to this if the FIRST character of the string is also a "/"). This gives \$2F or #AF.

DEFW <string address>
DEFW <string length>

The string must not contain any control characters (including newlines) and padding with spaces is not required. This second filename style can be used even if the string is just a simple name and doesn't contain any sub-directory names - the first style is only included for compatibility with G(+)-DOS programs.

GOVERNMENT HUMOUR WARNING

Humour reserves have been deposited and the rest of this article has been judged to be entirely factual, rated NGR not good reading. Please take care to limit exposure to avoid chronic humour fatigue.

The settings for the DATA field are specific to each CC. The following summary of which fields should be set before each call should be read in conjunction with the equivalent Basic command syntax (found in the Uni-DOS manual). In general, unused fields should be set to 255 (FF hex), although this is usually not essential. Because of a bug, the DRIVE field must always contain a valid value (1,2 or *) even if it isn't actually needed by the CC.

CAT - CC.87

```

DRIVE: DEFB 1,2 or "*"
CHAN: DEFB <output channel no. > (2=screen, 3=printer)
DEVICE: DEFB "I" / <no. of columns> or 255 for full catalogue.
NAME: DEFB 10 ;Set to "*" to list all files.
DATA(2):DEFB 255, or 195 (keyword "NOT") to list hidden files as well.

```

MOVE files - CC.83

(2 Dstreams required)

Move files, move streams and ERASE TO.. all require two filename

fields. For these CC's, a second Dstream must immediately be placed after the first (ie. IX points to a 48 byte data).

```

DRIVE1: DEFB 1,2,"*"
DEVICE1:DEFB "D"
NAME1: DEFB 10
DRIVE2: DEFB 1,2,"*"
DEVICE2:DEFB "D" or 255 for no prompts
NAME2: DEFB 10 ;Set to "*" if files are not to be renamed.

```

Another bug means that 'MOVE OVER' (and 'SAVE OVER') cannot be done by a CC. The only way round this would be a Uni-DOS patch.

MOVE streams - CC.82

(2 Dstreams required)

```

DRIVE1: DEFB 1,2,"*"
CHAN1: DEFB 0-15 or #255 ;if 255 then the stream is a named file and the NAME field must be set.
(NAME1: DEFB 10] ;This field required when CHAN1 = 255.
(DRIVE2:DEFB 1,2,"*") ;Set this if prompts are required.
CHAN2: DEFB 0-15 or 255
(NAME2: DEFB 10] ;Required when CHAN2 = 255.

```

ERASE - CC.85

```

DRIVE: DEFB 1,2,"*"
DEVICE:DEFB "D" or 195 (C3 hex) to prevent an error if no files found.
NAME: DEFB 10

```

RENAME - CC.81

(2 Dstreams required)

```

DRIVE1: DEFB 1,2,"*"
NAME1: DEFB 10
NAME2: DEFB 10

```

SAVE - CC.75

All variations require -

```

DRIVE: DEFB 1,2,"*"
TYPE: DEFB 1,2,3,4,7,8 or 11
NAME: DEFB 10
DATA(2):DEFB <file length LSB>
DATA(3):DEFB <" " MSB>
DATA(4):DEFB <data address LSB>

```

DATA(5):DEFB <" " MSB>

By filetype, the additional fields that must be set are:-

1) BASIC

```

DATA(1): DEFB 0
DATA(6): DEFB <program length minus variables LSB>
DATA(7):DEFB <program length minus variables MSB>
DATA(8):DEFB <auto-run line no. LSB> or 255
DATA(9):DEFB <auto-run line no. MSB> or 255

```

Usually: <data address> = (PROG)
<file length> = (E_LINE)-(PROG)-1
<length w/o vars> = (VARS)-(PROG)
Where: PROG=23635 (5C53 hex)
E_LINE=23641 (5C59 hex)
VARS=23627 (5C4B hex)

2) NUMBER ARRAY

DATA(1): DEFB 1

3) ARRAY

DATA(1): DEFB 2

If you really want to save arrays then look at the tape load and save routines - DATA(1) to (9) should be set up in the same way as the 9 byte tape header.

4) CODE

```

DATA(1): DEFB 3
DATA(6): DEFB 255
DATA(7): DEFB 255
DATA(8): DEFB <auto-run address LSB> or 255
DATA(9):DEFB <auto-run address MSB> or 255

```

7) SCREEN\$

Usually <file length> would be set to 16384 (4000hex) and the <data length> to 6912 for a screen picture, plus:

```

DATA(1): DEFB 3
DATA(6): DEFB 255
DATA(7): DEFB 255
DATA(8): DEFB 255
DATA(9): DEFB 255

```

8) SPECIAL

Set the other DATA bytes as you want.

11. EXECUTE

No extra fields required
Usually <data length>=510

LOAD/VERIFY/MERGE

CC's 72,73,74

All variations require -

```
DRIVE: DEFB 1,2,"*"
[PROGNO:DEFB 1-80] ;Required if
DEVICE="P"
DEVICE:DEFB "D" or "P"
[TYPE: DEFB 1-11 or 13]
;Required if DEVICE="D"
[NAME: DEFB 10] ;Required if
DEVICE="D"
```

Note that the LOAD p<pathname> syntax can be achieved with DEVICE="P", PROGNO=255 and the NAME field set.

When VERIFYing, the length and address fields (DATA(2) to (5)) also need to be set in the same form as for SAVE

Now with DEVICE="D", filetypes are:-

1) BASIC

```
DATA(1): DEFB 0
DATA(2): DEFB 255
DATA(3): DEFB 255
DATA(4): DEFB 255
DATA(5): DEFB 255
DATA(6): DEFB 255
DATA(7): DEFB 255
DATA(8): DEFB 255 or <auto-run 1
line override LSB>
DATA(9): DEFB 255 or <auto-run 1
line override MSB>
```

2) NUMBER ARRAY

```
DATA(1):DEFB 1
DATA(6):DEFB <variable letter>
```

3) STRING ARRAY

```
DATA(1):DEFB 2
DATA(6):DEFB <variable letter>
```

4) CODE and 7) SCREEN\$

```
DATA(1):DEFB 3
DATA(2):DEFB #FF or <file length
override LSB>
DATA(3):DEFB #FF or <file length
override MSB>
DATA(4):DEFB #FF or <data address
override LSB>
```

```
DATA(5):DEFB #FF or <data address
override MSB>
DATA(6):DEFB #FF
DATA(7):DEFB #FF
DATA(8):DEFB #FF or <auto-run ad
dress override LSB>
DATA(9):DEFB #FF or <auto-run ad
dress override MSB>
```

5) 48k SNAP - No further parameters

9) 128k SNAP

11) EXECUTE

13) CREATE

OPEN channel - CC.76

If the CC completes successfully then LD IX,(23633) will set IX as a pointer to the stream data area. I haven't included the stream data structure but if there is interest I may do a follow-up article.

```
DRIVE: DEFB 1,2,"*"
PROGN: DEFB 191,223 or 165 (key
words "IN", "OUT", "RND")
CHAN: DEFB 0-15
NAME: DEFB 10 or 1st byte = 25
5 for whole disc
```

If the stream type is not 'OUT' then you must also specify whether a blank file is to be created or not -

```
DATA(1): DEFB 255 or <file length
h LSB> ;When 255, look for
DATA(2): DEFB 255 or <file length
h MID> ;an existing file.
DATA(3):DEFB 255 or <file length
MSB>
```

If the length specified is other than 16777215 (FFFFFF hex), you also require -

```
DATA(4):DEFB <default file byte>
```

POINT - CC.77

```
DRIVE: DEFB 1,2,"*" ;(must alwa
ys be valid)
CHAN: DEFB 0-15
DATA(1):DEFB <position LSB>
DATA(2):DEFB <position MID>
DATA(3):DEFB <position MSB>
```

OUT - CC.78

(Flush stream data)

```
DRIVE: DEFB 1,2,"*"
```

```
CHAN: DEFB 0-15 or 255 for all
random channels
```

CLOSE - CC.79

```
DRIVE: DEFB 1,2,"*"
CHAN: DEFB 0-15 or 255 for all
channels
```

CLEAR# - CC.80

```
DRIVE: DEFB 1,2,"*"
```

IN - CC.84

(Change disc/directory)

```
DRIVE: DEFB 1,2,"*"
NAME: DEFB 10 or 1st byte = 255
to change drive only
```

Well that's the lot. There are 15 command codes listed rather than 13 because CAT and ERASE were also GDOS CC's, but their Uni-DOS versions are slightly different. If anyone's interested, there is scope for a follow-up article on Uni-DOS streams, how to detect the end of files and how to implement the functions (LEN #n) and (POINT #n) in machine code

Finally, how to load that screen picture -

```
ORG 60000
LOAD: LD IX,DSTREAM
RST 8
DEFB 72
LD HL,10072 ;Set HL' to 10
072 before ret to Basic
EXX
LD BC,0 ;BC = return value
RET NC
LD C,A
RET
```

```
""",255,255,"D",7
```

```
NAME: DEFB 175
DEFW FILENAME,11
DEFB 0,0,0,0,0
```

```
DATA: DEFB 3
DEFW 6912,16384,65535,65
535
```

```
FILENAME: DEFB "/scrns/picl"
```

This loads a picture named 'picl' from a directory called 'scrns'. Compile this and call it with -

```
LET error=USR 60000
```

The value returned in the variable 'error' will be zero if it worked ok, or the error number of what went wrong.



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BUSINESS AS USUAL

The problems at Blue Alpha, caused by Mark's illness, have caused slight delays but we are doing our very best to ensure that these do not affect our customers unduly. Alternative arrangements have been made for assembly work, so normal service will continue.

We are also trying to make special arrangements for repairs.



YOUR LETTERS

Dear Editor,

Having been an associate member since the demise of Y.S. and recently joined as a full member I wonder if it is not possible to duplicate the programs which are in the magazine for both us Specry owners and SAM. I know that it is not possible to include them both but why not make a copy available for either which is possible to get with an SAE or whatever, you could I am sure make a minimal charge.

I only make this request as it is not all who are so expert at changing a bit here or there, I am still having a job with Basic. As with Ern's 'POLAR' program and even after speaking to him on the phone I was well and truly stumped, so gave up on that one.

Otherwise I have no complaints a very interesting mag.

Yours Sincerely, J.A.Sharvell.

Most Spectrum programs will run on SAM with very little alteration although, obviously the reverse is not always true. However, typing in programs and experimenting with them is the best way I've found to learn programming. It may at times be frustrating, it may even force you to give up once in a while, but eventually you will see the light.

As to producing a regular disc with the programs already to run for both systems. Well, I get to see little of my wife at the moment, I'm sorry but it would be just too big a job. *Ed.*

Dear Editor,

A few weeks ago, I sent away a cheque for a copy of the Sam Technical Manual.

This morning, I received a letter from you saying my order could not be processed as I had failed to include my membership number.

Unfortunately, I don't have a membership number as I'm not a subscriber to *FORMAT*. Yet. Please find enclosed a cheque for one years subscription to INDUG.

I used to get *FORMAT*, but did not re-subscribe as there were hardly any articles on my favourite subject, comma. I have used a Spectrum with a modem for a few years, and now use a SAM Coupé. I only know of two other people who use their SAM for comma., so maybe an article on the subject would bring more people to the hobby. If need be, I could write such an article.

Yours Sincerely, Andrew Birkett.

We would always welcome an article on comma Andrew. We have printed several in the past but they did not seem to spark much interest. The current lack of a modem for SAM (and more importantly the software to go with it) is a problem that may be overcome if there was a just little more interest in the subject. *Ed.*

Dear Editor,

Only a little dilemma.... if one spots a minor error in a prog in *FORMAT*, and if one is quite convinced that any reader entering the prog will most certainly also spot it without a moments delay - so knowledgeable are your readers - should one write and publicize the lapse? You see, if some of us have not yet had the opportunity to type in the listing, it

would save them a little trouble to know about the error beforehand.

On the other hand one does not want to be thought to be carping, or to be big headed, or pushy.

What was it? You're sure? Well, it was only a small error, for goodness sake. O.K. September issue, p.11 - 'Lissajous' - re-locate line "160 NEXT F", making it line 150. (Doesn't the existing line 150 confuse things?).

I expect you'll get dozens of letters about this, including one from Mr Redfern! Nice little prog, John.

Congrats on a jolly good SAM/Spec mag - I wish I understood more of it.

Yours Sincerely, John Saunders.

I'm always glad when someone spots an error and writes in before I get bombarded with phone calls from frustrated readers. Thanks John, you saved me some work. *Ed.*

Dear Editor,

Thank you for the current (September) *FORMAT*. The 'RUBOUT' block delete program presented by John Littler (p31) was excellent! Why? Because of the instructive REMs and reference to Logan & O'Hara I could readily understand the source code and therefore how the routine worked.

As presented Listing 2 works perfectly. But also works with lines 220 & 230 removed, as they are superfluous surely? The PROC label has to be moved to 240.

Further, in Listing 1, the last line of 5 bytes of data is missing, probably a printer problem.

Yours Sincerely, Roy Burford.

Many thanks Roy. Glad you liked the prog. *Ed.*

Dear Editor,

Has anyone had ANY experience with connecting robots (especially motors) up to the SAM. I would like to start and any information on ports, interfaces and

programs to run them would be very much appreciated. One thing that would be most useful is if you could turn the expansion port into a BBC User Port as everything is based on this. If anyone has any information please contact *FORMAT* for my address so any letters can be passed on.

Yours Sincerely, Matthew Beaman.

Anyone like to help Matthew, maybe with an article we could all enjoy? *Ed.*

Dear Editor,

Just received latest edition of *FORMAT* and have a query on Mr Henn's article "BJ10 Dumping". I have a star SJ48 Bubble jet printer, which I believe is virtually the identical to the BJ10.

I typed in the 1024 Byte listing and tried it out and all I got was a blank page!

Does Mr Henn know if the BJ10 has any different ESC codes which may account for this? It could possibly only need a couple of different values to work.

Also could you send me some information on the DTP pack from PCG. I have read the review on the DTP program from Steves Software and would like to have some sort of comparison before deciding which one to buy.

Many thanks for a fine magazine.

Yours Sincerely, J.W.Canfield.

Most people with a printer only have access to the manual for that printer so I doubt that anyone could help without a copy of your printers control codes.

As to your extra note on Eurocheques. British banks are funny on them these days. I know both Revelation and West Coast will no longer accept them. However, for the moment anyway, we still can. And will pass order on. *Ed.*

Dear Editor,

Reference this month's 'The Editor

Speaks' - the enclosed is the only £20 note I have to hand. If my answer is correct then I hope the prize is more than £20, or I shall have lost money!

More seriously, I was interested in your scheme to republish Spectrum books. In those cases where you cannot secure the rights, an alternative would be to run some sort of lending library with a suitable safeguard, such as a deposit, to avoid rogues.

In case anything were to come of such a scheme, I attach a list of my Spectrum books, which I should be happy to contribute to the stock of such a library. I would rather do this, and thus make them available to all your readers, rather than to sell them to an individual.

Yours Sincerely, Alan D.Cox.

Running a postal lending library would be a very difficult (and, I would suggest, costly) undertaking. However, most local libraries can obtain specialist books for readers if they want them. Your books could be sold through the Small Ads section, or better still brought along to that next Gloucester show.

We have now chosen the first two books for republishing under the *FORMAT* logo. Next month we will give full details of how much and when they will be available. *Ed.*

Dear Editor,

'Bout time I dropped you a line for more than one reason. Firstly, I should thank you more profusely for your help in getting my DISCiPLE back to work after I had blown it up not so long ago. Turned out that I had not through-soldered one pin and this caused all the problems. Since then all is well.

Secondly, my apologies for not being at the show on the 22nd. My wife has booked us a local 'boot' sale all day and she had to book our table way back in the spring. 'Boot' is merely a word, 'cos it's being held in our local hall. I am hoping to sell our old Sony KV 1400UB

TV there. It still works OK but weighs a ton and lacks the facilities of present-day sets.

Thirdly, I note that Ray Bray has a dearth of queries on his plate on the one hand, and on the other hand I am still unable to use my mouse on Art Studio! How many years have I been asking for an explanation as to why that should be? I think I might ask the Oracle (Dick (Oh Lord what's his surname)) if he is prepared to have a go at my lot. He'll need a steel hat, as it will almost certainly blow up his Speccy.

Finally, any oddities about this printing is because my Taxan has gone on the blink and I am using my wife's LQ100. Have made up a Tasword 3 disc to handle the different printer commands.

Good luck for the 22nd, and I look forward to reading all about it in the next *FORMAT*.

Yours Sincerely, Jack Law.

I think I've replied to a letter about the mouse business before, but just in case, here goes.

With the DISCiPLE version of the Kempston mouse software, will work. However, there never was a disc compatible version of the AMX which I think is what Art Studio was designed for. As you know, Datel sell the PLUS D, but the last time I heard, the Genius mice that Datel also sell were not compatible with the DISCiPLE/PLUS D.

I've never heard of anyone altering the hardware or software to get things working but I'm sure if someone has they will let us know.

It would be very difficult for the Help Page masterminds to look at the problem as they almost certainly do not have the hardware and may not have the software in question. *Ed.*

Dear Editor,

I bought the interface and cable for my Citizen 120D+ and now I cannot do

screen dumps of pictures or graphics from art discs.

I had to move into a transit house to allow structural faults in my home to be remedied and lost my ROM 2 disc which had I believe a dump drive on it.

Is it possible to help me to use SAM to print screens in the same way I can on my Amiga 600? If I can't get some result I'm afraid I've wasted my money on the interface and cable.

Please help if you can in the magazine in the near future.

Thanking you in anticipation.

P.S. I am interested in trying to draw Art pictures of a sort.

Yours Sincerely, Mr C.Wright.

A fresh copy of the SAMDOS disc is available from Revelation at £4.95 including UK p&p. However, there are much better dump routines within MasterDOS, so, if you don't already use that, it is well worth the money. *Ed.*

Dear Editor,

Thank you for passing on Mr Ingram's letter from New Zealand asking for details of my genealogy database.

A copy was sent to him, and I understand that it will appear in a future issue of SUNZ (Sam User New Zealand)

He was kind enough to send me, in return, a copy of SUNZ, and very good it is too. Similar to SAM Supplement, although it will appear every three months or so, presumably due to a smaller user base.

Mr Ingram asked me to pass on his thanks also.

Yours Sincerely, Peter Wood.

And I pass on my thanks for all the thanks. *Ed.*

Dear Editor,

As it is not possible for some of your readers to get to the show, is it possible for you to publish a list of the exhibitors

and their produces so that we not only see what we missed, but are able to avail ourselves of these products.

I looked at the location but there are probably a lot like myself who do drive, but being disabled need to avoid the stress of long distances.

Yours Sincerely, J.A.Sharvell.

Two letters in one issue does not win you a prize I'm sorry to say.

Anyway, last months issue gave an almost complete list of the exhibitors and you can rest assured that any new products will get a mention in *FORMAT* so keep reading. *Ed.*

Dear Editor,

I have just been checking through my *FORMATs*, which go back to the free one I received with my DISCiPLE Interface in Saudi Arabia in 1987, but alas, I appear to be missing one issue! Hence the enclosed order.

You know Bob I use other computers, but every now and then I get stuck for something, and I know I can always work it out using some Basic on the Spectrum!

Seeing as I am unemployed at the moment, and at 82 years of age I have gone back to college! I have little time to spare so I am trying to get my Spectrum stuff in some sort of order so I can go to what I want when I want it and not have to spend hours in a fruitless search, at least that is the theory, whether it will come to fruition is another story!

Many thanks for *FORMAT*, and my very best wishes to you and yours.

Yours Sincerely, Fred Day.

Good luck with the college course Fred. *Ed.*

Dear Editor,

Sorry if this letter seems a bit disjointed, but it's been quite a long time since I last wrote, so I've got several points to make:-

1. The SAM. When will West Coast realise that for £199.95 with one drive, 512K and no bundled software, it's just too expensive? OK, I understand that West Coast is a small company and therefore less able to cut costs to the same extent as the likes of Commodore and Atari, but surely they realise that if the man in the street is offered a choice between a SAM Elite and an Amiga 600 (both costing £199.95), he's going to choose the Amiga - the one with the free games and utilities pack, most software support, the best graphics, the news-stand magazines, the TV coverage....?

The integral printer port and the slight price reduction for a twin-drive machine are a step in the right direction, but if it wants to sell in any significant numbers, it needs at least a £20 price reduction and bundled software (perhaps West Coast could buy up Enigma Variations' old stock?). You may argue that the SAM is the most programmable machine on the market, but in 1994 no-one is going to realistically buy a computer just for that - my point is proven by the fact that all SAM owners seem to have either upgraded from a Spectrum or picked their computer up from Menzies for £20. Don't get me wrong, the SAM is a great computer - it's just too expensive.

2. *FORMAT*. Since my first issue (September'91), you've improved immeasurably, but (other than games coverage) there's still one very important area that you haven't yet tapped into.... interviews. I'm sure that there's a lot of people out there who would like to know what Alan Miles and Bruce Gordon, or Uncle Clive or Matthew Smith, or Simon Brattel, are up to now - or for that matter what West Coast are up to full stop! (Are they real people? Why are they so shy of publicity? What are they trying to hide? Do they realize that their company has the same initials as a toilet? (titter titter, Jenny) Why did they

choose such a singularly unattractive logo? Are they aware of anything that goes on in the SAM community outside of Ponterdawe?) Sorry guys, no offence meant.

I'm not necessarily thinking of the straight question-answer-question-answer format - perhaps something along the lines of those features that the late, great Craah used to do on the likes of Denton Designs and Melbourne House?

5. Those readers frustrated by the SAM's graphics may be interested to know that an old Sinclair User cover-tape (Megatape 27, from issue 99, May 1990 to be precise) contains two remarkable new graphic modes written by Simon Godwin, one of which doubles the resolution to 512*384 pixels, and the other allows 8.256 colours in mode 1 with no attribute restrictions. Although Sinclair User is long gone, back issues are still available if you ring Emap's back issues department on (0858) 410 510.

4. Where are they now? Lerm, the SAM Tracker Ball, the WIMP system that Mason and Thomas Daniel were working on in the summer of 1991, Turbo, Enceladus, Outlet, Ron Stirling's art package, SAM versions of F-16 Combat Fighter, Kick Off II, Strider, Treasure Island Dizzy, Nigel Mansell's Grand Prix....

Yours Sincerely, Mark Sturdy.

Phew! Bit long there Mark. Anyway, from the top.

SAM is the price it is because that is what WCC are able to make it for. It is always nice to see the price come down but, if anything, it is better to see the spec go up. Bundled software is no good, what appeals to one person would put another off. OK, with Amiga software being so over-priced it makes sense for new owners to have some software from day one. But with SAM software being so

cheap, and with SAM's ability to run Spectrum software (and most new SAM users are upgrading from a Speccy) the need for bundled software is not there.

Interviews. Mmmm, nice idea. I will put it out to a couple of writers, but the last time I tried to organize an interview we were turned down by all three people we approached. Some people it would seem like their privacy. And it is WCC not WC, and yes they do like to keep a low profile - it allows them to get on with things, just like Sinclair Research did in the early days, using sub-contactors like us and Blue Alpha means that WCC's overheads are very small - which keeps them going where others have, in the past, failed.

Are people frustrated with SAM's graphics? Anyone care to comment? The floor is all yours readers. As to the routines on the SU tape, these are only usable for static screens.

Lern are still where they have always been, although they no longer advertise, an Atari tracker ball could still be purchased as an alternative to the mouse but, to be honest, SAMCO only sold a handful when they did them so WCC don't bother to advertise them now. The launch of DRIVER may have scuttled the other WIMP system - anyone out there know what happened? Enceladus and Outlet are now available from Fred Publishing, Turbo I have not seen for a long time. I know nothing about Ron's art package but F-16 and the others were never completed (mostly due to lack of effort on the programmers part). Some may not be lost forever, but only time will tell. Ed.

Letters may be shortened or edited to fit on these pages although we try to edit as little as possible.

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